

2-15-83

INTER OFFICE MEMORANDUM

THE METROPOLITAN SANITARY DISTRICT OF
GREATER CHICAGO

DEPARTMENT: RESEARCH AND DEVELOPMENT DATE: Feb. 16, 1983

TO: Mr. Forrest C. Neil
Chief Engineer

REFERENCE #5
SITE NAME Chi. Dept. of Streets + Sanitation
SITE ID ILD 981 194699

FROM: Cecil Lue-Hing

SUBJECT: Groundwater Monitoring Report for the City of
Chicago, 103rd and Doty Site

The attached report contains well water monitoring data for the period of June through October 1982 for the City of Chicago, 103rd and Doty landfill site.

This is the first groundwater monitoring report for this site, and, I understand, is to be included in reports to IEPA being coordinated by Mr. Macaitis of your department.

Cecil Lue-Hing
Cecil Lue-Hing
Director
Research and Development

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EPA Region 5 Records Ctr.



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WATER ANALYSIS REPORT FOR MONITORING WELLS AT THE
CITY OF CHICAGO, 103rd AND DOTY LANDFILL SITE
FOR THE PERIOD OF JUNE THROUGH OCTOBER 1982

Four wells were drilled into the limestone strata underlying the City of Chicago, 103rd and Doty Landfill Site to monitor the groundwater quality of the underlying limestone aquifer. Location of these wells is shown on Figure 1. Two of the wells did not yield water (wells No. 2 and 4). Submersible pumps were installed only in the two wells which do yield water. Data from the well drillers log for the four wells is contained in Appendix A of this report.

Between June 17 and October 1982, five samples were taken from well No. 1 and six samples from well No. 2. To ensure obtaining a fresh water sample, two well volumes were pumped from well No. 1 before a sample was taken. Because of its slow recharge rate, well No. 3 was pumped dry before two volumes could be removed. This well was allowed to recharge and then sampled. Recharge time was approximately fifteen minutes.

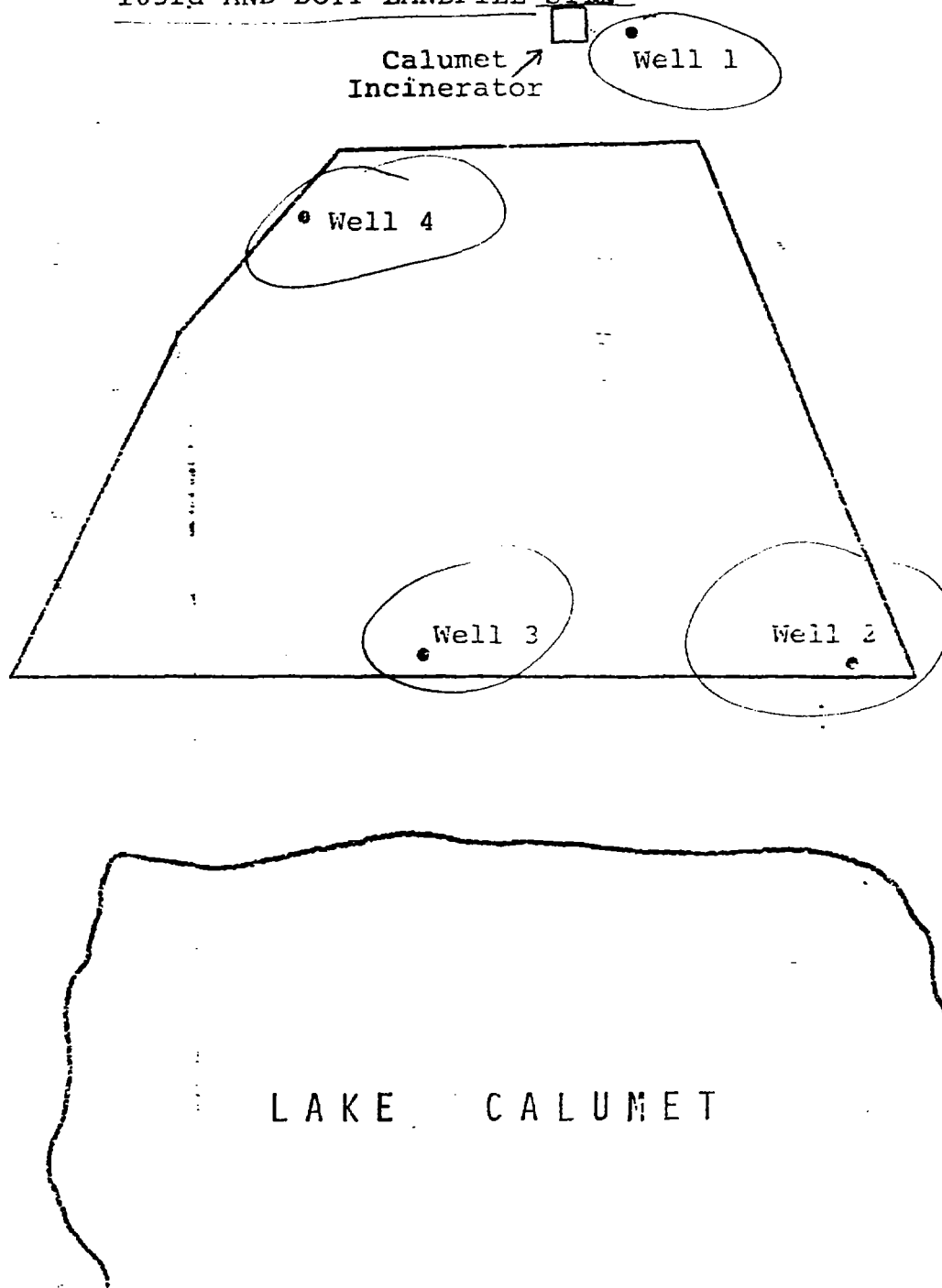
The well samples were analyzed in the field for pH and EC. A separate sample was taken for fecal coliform analysis. A sample for chemical analysis was passed through a 0.45 micron filter and divided into three aliquots: 1) an aliquot containing nitric acid preservative for trace metal analysis; 2) an aliquot containing phosphoric acid preservative for total organic carbon analysis; 3) an aliquot containing no preservative for nitrogen, anions, and total dissolved solids analysis.

Analysis of all samples taken from wells No. 1 and 3 for the period of June through October 1982 is presented in Table 1 for well No. 1 and Table 2 for well No. 3.

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FIGURE 1

LOCATION OF THE FOUR MONITORING WELLS AT THE CITY OF CHICAGO
103rd AND DOTY LANDFILL SITE



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TABLE 1

ANALYSIS OF WATER FROM MONITORING WELL NO. 1 AT THE CITY OF CHICAGO, 103rd STREET
AND DOTY AVENUE LANDFILL SITE IN CHICAGO FOR THE PERIOD OF JUNE THROUGH OCTOBER 1982

Parameter		Sampling Date					
		6/17/82	7/29/82	8/17/82	9/17/82	9/30/82	10/14/82 10/28/82
pH		9.5	8.6	*	8.3	8.8	7.5 *
EC	µmhos/cm	630	524		468	590	510.
Total Dissolved Solids	mg/L	326	296		310	300	342
Total Org. C	"	4	3		5	22	7
Cl	"	44	30		34	32	32
SO ₄	"	11	26		21	0	14
ORP	mv	+70	N.A.		+60	+180	+50
NH ₃ -N	mg/L	0.0	0.5		0.3	0.3	0.1
NO ₂ -N	"	0.01	0.01		0.01	0.01	0.01
NO ₃ -N	"	0.00	3.60		0.00	0.00	0.03
Alk. as CaCO ₃	"	177	161		156	152	157
Fecal Coliform/100mL		<2	<10		<1	<1	<1
K	"	N.A. **	4.7		4.9	4.8	4.7
Na	"	117	67		81	80	79
Ca	"	9.0	13		6.5	5.9	6.9
Mg	"	2.5	4.0		2.3	2.6	2.9
Cd	"	0.00	0.01		0.00	0.00	0.00
Cu	"	0.03	0.02		0.01	0.02	0.00
Ni	"	0.00	N.A.		0.00	0.00	0.00
Mn	"	0.03	0.01		0.00	0.01	0.01
Pb	"	0.01	0.00		0.01	0.00	0.01
Hg	µg/L	0.4	0.5		0.5	0.0	N.A.
Static H ₂ O elev.	ft.	569.1	567.1	N.A.	567.1	567.1	567.1

* No sample, pump malfunction.

** No analysis.

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TABLE 2

ANALYSIS OF WATER FROM MONITORING WELL NO. 3 AT THE CITY OF CHICAGO, 103rd STREET
AND DOTY AVENUE LANDFILL SITE IN CHICAGO FOR THE PERIOD OF JUNE THROUGH OCTOBER 1982

		Sampling Date						
Parameter		6/17/82	7/29/82	8/17/82	9/17/82	9/30/82	10/14/82	10/28/82
pH		9.3	*	5.8	8.7	8.7	8.4	8.4
EC	µmhos/cm	480		572	538	515	524	495
Total Dissolved Solids	mg/L	350		304	320	350	336	336
Total Org. C	"	7		N.A.	4	7	5	5
Cl	"	46		36	36	35	37	37
SO ₄	"	2		11	13	0	0	0
ORP	mv	-50		+70	+90	+280	-30	-115
NH ₃ -N	mg/L	0.0		0.2	0.3	0.2	0.1	0.1
NO ₂ -N	"	0.01		0.01	0.01	0.01	0.01	0.01
NO ₃ -N	"	0.00		0.11	0.00	0.08	0.00	0.00
Alk. as CaCO ₃	"	197		168	179	194	163	163
Fecal coliform/100mL		<2		<10	<1	<1	<1	<1
K	"	N.A. **		4.4	4.3	4.3	4.4	4.4
Na	"	135		95	94	94	89	89
Ca	"	4.5		4.3	4.8	7.5	4.0	4.0
Mg	"	2.3		2.4	2.2	3.4	3.1	3.1
Cd	"	0.00		0.01	0.00	0.00	0.00	0.00
Cu	"	0.02		0.02	0.01	0.02	0.00	0.00
Ni	"	0.00		0.1	0.0	0.0	0.1	0.1
Mn	"	0.02		0.00	0.00	0.04	0.01	0.01
Pb	"	0.02		0.01	0.00	0.01	0.00	0.00
Hg	µg/L	0.4		0.6	0.2	0.0	0.0	0.0
Static H ₂ O elev.	ft.	565.7		N.A.	564.7	564.7	566.7	566.7

* No sample, well temporarily inaccessible due to construction.

** No analysis.